Claims:

1. Semiconductor laser device comprising

- a semiconductor laser element (1, 21) or a host of individual lasers mounted in parallel with a host of exit surfaces (2, 3, 4, 5, 22, 23, 24) from which laser light can emerge which in a first direction (Y) has greater divergence than in the second direction which is perpendicular to it; and
- at least one reflection means (7, 9, 16, 16', 28) which is located spaced apart from the exit surfaces (2, 3, 4, 5, 22, 23, 24) outside of the semiconductor laser element (1) or of the individual lasers, with at least one reflecting surface (8, 10, 11, 12, 13, 17, 18, 19, 20, 29, 30, 31) which can reflect back at least parts of the laser light which has emerged from the semiconductor laser element (1, 21) or the individual lasers through the exit surfaces (2, 3, 4, 5, 22, 23, 24) into the semiconductor laser element (1, 21) or the individual lasers such that the mode spectrum of the semiconductor laser element (1, 21) or of the individual lasers is influenced thereby;

characterized in that

at least one reflecting surface (8, 10, 11, 12, 13, 17, 18, 19, 20, 29, 30, 31) of the reflection means (7, 9, 16, 16', 28) is concavely curved.

2. Semiconductor laser device as claimed in claim 1, wherein at least one reflecting surface (8, 10, 11, 12, 13, 17, 18, 19, 20, 29, 30, 31) can reflect back component beams of laser light onto the exit surfaces (2, 3, 4, 5, 22, 23, 24) such that they are used as an aperture.

3. Semiconductor laser device as claimed in one of claims 1 or 2, wherein the

semiconductor laser device comprises a lens means (6) which is located between the reflection means (7, 9, 16, 16', 28) and the semiconductor laser element (1, 21) or the individual emitters and which can at least partially reduce the divergence of the laser light at least in the first direction (Y).

4. Semiconductor laser device as claimed in one of claims 1 to 3, wherein the reflection means (7) has a reflecting surface (8) on which the component beams (2a, 3a, 4a, 5a) emerging from different exit surfaces (2, 3, 4, 5) can be reflected.

5. Semiconductor laser device as claimed in one of claims 1 to 3, wherein the reflection means (9, 16, 16', 28) has a host of reflecting surfaces (10, 11, 12, 13, 17, 18, 19, 20, 29, 30, 31) which can each reflect the component beams (2a, 2c; 3a, 3c; 4a, 4c; 5a, 5c) emerging from the individual exit surfaces (2, 3, 4, 5, 22, 23, 24).

6. Semiconductor laser device as claimed in one of claims 1 to 5, wherein the semiconductor laser device comprises a beam transformation unit (15) which is made especially as a beam rotation unit and preferably can rotate individual ones of the component beams (2a, 2b, 2c; 3a, 3b, 3c; 4a, 4b, 4c, 4d; 5a, 5b, 5c) at one time, especially by roughly 90°.

7. Semiconductor laser device as claimed in claim 6, wherein the beam transformation unit (15) is located between the reflection means (7, 9, 16, 16', 28) and the semiconductor laser element (1) or the individual lasers, in particular between the reflection means (7, 9, 16, 16') and the lens means (6).

8. Semiconductor laser device as claimed in one of claims 1 to 7, wherein the semiconductor laser device furthermore comprises a frequency-doubling element which is located between the reflection means (7, 9, 16, 16', 28) and the semiconductor laser element (1, 21) or the individual lasers, especially between the reflection means (7, 9, 16, 16', 28) and the lens means (6).

9. Semiconductor laser device as claimed in one of claims 1 to 8, wherein the semiconductor laser element (21) is exposed to a voltage and is supplied with current for producing electron-hole pairs only in partial areas (34) which correspond to the three-dimensional extension of the desired mode of the laser light.